classified, and which includes not only cases of simple contrecoup, but of double-sided injury as well.

Of these latter cases the author has found but one record in reviewing the literature of the subject, the case reported by Stankowsky, of a young man who had perforation of both drumheads as the result of a heavy blow upon the left ear, in which ear there was also a labyrinth concussion as further evidence of the force of the impact.

The exact mechanism of the injury by contrecoup is not yet adequately determined, and it is possible that help for solution of the general question may be reached through carefully collated records of injury to the drumhead and such observations as have been attempted by Corradi, who finds that the majority of solutions of continuity resulting from air pressure occur in that portion of the drumhead which is both the thinnest and the most movable, namely, the central portion, while the injuries as the result of contrecoup are, as a rule, longitudinal ruptures starting from some point at the periphery of the drumhead and running wholly or partly across it, a condition which he regards as consonant with the proposition that in the transference of motion from a medium of one density to that of another of different density, the point of transference is that at which the solution of continuity is most likely to occur.

With this opinion of Corradi the author does not, however, agree, holding that ruptures of this type are not the result of irradiation, and the transference of the force exerted to a weaker medium, but are exhibitions of the true contrecoup reaction.

This view is based upon the experiments of Bergmann and Messerer upon the elasticity of the bones of the skull, considered as parts of an elastic globe, with susceptibility to "bursting fracture" primarily at points at right angles to the line of compression, and, secondarily, where there is a simple blow without counteracting pressure, midway between the point of impact and the right angle above mentioned; in other words, the author holds that ruptures of the drumhead consequent upon blows upon the skull other than those directly applied to the affected ear are the result neither of compression nor of irradiation, in the sense of Corradi's theory, but of a true "bursting fracture" incident to the natural elasticity of the skull which makes the phenomenon of contrecoup possible.

The Surgical Treatment of Peripheral Paralysis of the Facial Nerve.—G. Alexander (*Archiv für Ohrenheilkunde*, Band lxii, Heft 1–2.) reports a case of grafting of the facial nerve to the hypoglossal. The patient presented complete left-sided paralysis of six years' duration, as the result of chronic suppurative middle-ear disease. The radical operation was performed and the labyrinth found diseased and filled with polypoid granulations. The facial and its canal were completely destroyed by the disease. Examination of the region supplied by the left facial showed the orbicularis oris somewhat contractile, but complete paralysis of the other face muscles and of the platysma. There was no disturbance of the taste sensation on the tongue, and there was a normal condition of the soft palate. Galvanic and faradic stimulation of the muscles by way of the nerve gave no reaction. However, direct faradic stimulation showed a slight reaction of the orbicularis oris of the under lip and direct galvanic stimulation showed evident reaction of the orbicularis of the upper and under lip. The grafting of the facial and hypoglossal was accomplished by exposing the hypoglossal in the angle made by the two bellies of the digastric muscle, dissecting out the facial trunk where it emerges from the stylomastoid foramen, cutting this off obliquely (a small bit of the nerve taken from this end and subsequently examined microscopically showed complete degeneration of the nerve fibres), and then suturing this end to the side of the hypoglossal nerve after denuding a small area on the side of this nerve of its neurilemma.

Six weeks after the grafting, the condition was as follows: Indirect faradic stimulation gave no reaction. Indirect galvanic stimulation (the electrode was applied over the scar of operation) showed slight reaction of the orbicularis oculi and the orbicularis oris of the upper and under lip, also of the depressor anguli oris. Direct faradic stimulation showed reaction in the orbicularis oris of the under lip and direct galvanic stimulation showed slight reaction in the same muscles which responded to indirect galvanic stimulation.

Alexander reviews the cases of suture of the facial to the spinal accessory reported by Ballance and that of Faure, where the facial peripheral end was sutured to the proximal end of the completely separated hypoglossal. A case of Körte of grafting similar to Alexander's own case and a case of facial-spinal accessory suture by Glück are briefly reviewed. Three methods have been employed:

1. Grafting of the several facials to the spinal accessory.
2. End-to-end suture of the peripheral end of the severed facial to the proximal end of the severed hypoglossal.
3. Grafting of the severed facial-peripheral end to the hypoglossal.

Of these methods Alexander believes the third most desirable because, in the first method, there are associated movements of the shoulder; and in the second method, although an end-to-end suture gives the best chance for regeneration of the nerve fibres, a permanent one-sided paralysis of the tongue and a consequent atrophy of the paralyzed side results. In no case thus far observed has a complete restoration of the function of the facial resulted.

As to the time after the onset of the facial paralysis at which the grafting should be undertaken, Alexander believes:

1. The grafting of the facial should not be undertaken before six months after the time of the appearance of the paralysis, and during this time, massage and electric treatment should have been tried.
2. After six months all cases should be operated in which (*a*) no voluntary contraction has become possible; (*b*) in which no faradic excitability is present; (*c*) in which the galvanic excitability of the nerve, in spite of treatment, decreases.
3. In cases of more than six months' duration a favorable result of grafting can be expected only when there remains some direct galvanic excitability.
4. If, in old cases, there is prompt galvanic reaction or there is a remnant of faradic excitability, some conservative treatment for a time is indicated.

Middle-ear Disease in its Relation to Metastatic Abscess of the Liver and Other Viscera.—S. MACUEN SMITH (*Archives of Otology*, April, 1904) reports three interesting cases of metastatic abscess of the